30 March 1973

Hal,

What I hoped would be a relatively brief paper to recap and amplify our discussions on the 23rd has grown somewhat, partly because of my personal interest in training, and partly because of my conviction that the training program will be a critical factor in adapting the abilities of the Agency effectively to meet its future responsibilities. I think OTR has done a pretty good job in the past, given the environment in which it was working. I don't believe, however, that a continuation of training along those lines will suffice, and I would like to help in identifying what's needed and leading the effort to provide what's needed.

In the attached paper, "On Training," I have indicated a few of the important initiatives which I feel should be, and can best be, undertaken by OTR. In the second paper, "Training--Experience and Qualifications," I have sketched some of the ways in which I have participated in our training activities in the past, and outlined some of my experience and other qualifications which are most relevant to our training programs.

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Training--Experience and Qualifications

By necessity I have been interested and involved in training since joining the Agency. The variety of procedures used in OEL stimulated me to begin the preparation with what has now become the Project Officers Manual, which is generally used throughout the Agency not only among
STATINTL Project Officers concerned with R&D, but also by others supervising external contracts.

As an outgrowth of the Project Officers Manual, [redacted] and I organized a course for Project Officers which has since been taken under the wing of OTR. Contractor personnel are used to provide three days of the course, with Agency officers providing the other two days of instruction. The Project Officers Manual is used extensively in this course.

About a year ago, concerned about the general ignorance within the Agency regarding the potential of systems analysis, particularly in dealing with large scale systems by modeling,
STATINTL I organized along with [redacted] a course, Large Scale Systems Analysis. It will be given for the sixth time before the end of this fiscal year. We used contractor personnel to present the course, and have been able to incorporate several improvements in it since it started. An OTR officer has assisted in arranging the facilities for the course, and we are hopeful that OTR will undertake the
STATINTL management of the course in the future.

I have arranged and conducted technical seminars on [redacted] and encouraged others to arrange similar seminars in other subjects. Announcements have been informally made, and the general reaction to these seminars has been positive.

In order to provide recognition for the work of Project Officers, and to disseminate information about their work throughout the Agency to others who might be interested, I have solicited items describing projects from various engineers and published several issues of R&D. This informal (and uncostly) little publication appears to be appreciated at all levels--from the DCI to the Project Officer.

I have written and published, both internally and externally, several articles having training implications in that they deal to a considerable degree with organizational response to change and some of the new technologies which

are critical, I believe, to the continued success of intelligence. These include, in Studies In Intelligence, "New Perceptives in Elint," and "Some Limitations of Systems Analysis in Intelligence Activities;" in the Naval War College Review "Science, Technology and Change: Implications for the Navy" and "Technology and the Establishment." The "Implications" paper was revised to focus primarily upon the Agency's problems and was published as a discussion paper, "Science, Technology and Change: Implications for the Central Intelligence Agency." Both Mr. Helms and Mr. Colby found this paper interesting, and recommended that the Deputy Directors read it.

In addition to the BS and MS degrees which I received at the University of Florida majoring in physics 20 years ago, I have in the last two years earned two additional Masters degrees covering the fields of Operations Research; R&D Management; Public Administration; Science, Technology and the State. I taught extensively while in the Marine Corps, was a civilian instructor in electronics maintenance at the Marine Corps Air Station, Cherry Point, North Carolina, and have lectured extensively on the subject of change in the Agency in various OTR classes such as the Senior Seminar, the Advanced Intelligence Seminar, etc.

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[redacted]

On Training

I believe that the training programs in the Agency will be critical to achieving the kind of changes which must occur if the effectiveness of the organization is to be improved. The kind of fundamental transitions which are needed can only be successfully achieved by changing peoples' perceptions, attitudes and capabilities. This cannot be done adequately by casual, personal reading of the press, and taking occasional courses.

Training Should Anticipate

Training must get out in front of the needs--it must anticipate, sufficiently in advance, the actions and activities that will be required in order to facilitate the change process. This requires an increased awareness of shifts in intelligence priorities, in collection, analytical techniques, and other areas. I do not mean to infer that Training should take the responsibility for forecasting the future, and the interests of the country and the Intelligence Community in that future, but it must participate in, and be responsive to, these kinds of activities. It will have to participate in organizing and expediting the change process, particularly with respect to "tuning" the personnel assets.

In the future it must be increasingly recognized that training is not a privilege but, in fact, is a responsibility which rests at all levels throughout the Agency.

In addition to anticipating the need, insofar as possible, for initiating appropriate training programs to meet new priorities or needs, attention must also be given to identifying and improving existing programs which are needed, and eliminating programs which are no longer required.

Greater flexibility in the presentation of training must be encouraged.

A few examples will clarify the preceding "motherhood" statements.

A course was established only a few years ago to provide some training for Project Officers so that they would better understand their responsibilities with respect to contracting, security, personal cover, and other factors, as well as their technical task. The need for such a course had existed for a long time. [redacted] who was at that time the S&T Directorate Contracting Officer, and I organized the course content, and OTR assisted by making appropriate classroom facilities

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available. Based on experience in presenting the course, student critiques, etc., the content of the course was improved, and OTR assumed responsibility for the management of this continuing course. Contractor personnel now present about half of the course thereby relieving the burden of instruction on Agency personnel. As the following attendance summary indicates, this course has been attended not only by Project Officers, but by Security Officers, Contracting Officers, Project Officers in charge of analytical (rather than technical) contracts, and other personnel who need to know more about the basics of R&D and similar procurement. In fact, one session was conducted specifically for audit personnel. At this point, I believe it would be appropriate to begin thinking about some optional presentations in this basic course: some applying specifically to R&D Project Officers, others tailored to the interests and problems faced by Project Officers supervising external analysis contracts.

I propose that OTR should be more sensitive to the developing needs for courses, and periodically survey in detail the training needs, and the Agency's capabilities to fulfill these needs internally. Outsiders must participate in this survey. The reason for this is that by the time the need becomes so apparent that a particular component or individual takes action on their own initiative to arrange for training, the total Agency need, when all added up, has long since passed the point at which training should have been started.

For some career areas in which a large number of personnel are involved--again we can use the Project Officer as an example--a definite training sequence should be established. I believe this can be readily accomplished by analyzing personnel records to determine common career paths. For example, at the end of a year we may find that there is a 92% probability that a newly hired technical officer will be a project engineer, and a 3% probability that he will be engaged in analysis. For Project Engineers with one year experience, the probability that he will still be a Project Engineer at the end of the second year may be 90%, with a 10% probability of becoming an analyst, or performing some other function. What is involved here essentially is the identification of a transition pattern. Now, based on these patterns, arrangements should be made so that the Project Officer receives appropriate training at the appropriate time in his career development. Furthermore, the exigencies of the present should not be allowed to interfere with this training process except in extreme circumstances, otherwise the future capabilities of both the Agency and the individual will ultimately degrade. And, of course, the transitions can be modified deliberately, if desired, to change the emphasis or content of the training.

Next 1 Page(s) In Document Exempt

A need for training, which seems to me to be only partially recognized at the present time, involves the use of computer terminals. The plans for installing these terminals at various places throughout the Agency, and for various purposes, are well advanced. What is not well organized is a program whereby the personnel will be ready at the same time the terminals are ready. No doubt there will be some who will understand the functional operations to be performed by using the terminals, some may understand the technical procedures, and some may understand some of the potential communications link problems in dealing with the main frame.

I feel it is the responsibility for Training to be sufficiently perceptive to initiate appropriate programs to deal with these kinds of evolving changes comprehensively. For computer terminals the training may be simple. Perhaps an illustrated manual, or a manual supplemented by an audio cassette, would suffice to provide uniform indoctrination and training on all the important basic items. It should not, however, devolve upon Commo, Security, the production offices, etc., to each invest the time and effort to develop whatever may be needed here. If a single source of comprehensive guidance is not provided, "folkways" and "local fixes" will rapidly develop. This happened among the R&D offices in the Agency and the resulting ad hoc practices still persist and inhibit the efficiency and effectiveness of the R&D programs. Appropriate action by Training can preclude, or at least reduce, the probability that a similar problem will appear with respect to the use of remote computer terminals.

The problem with respect to computer terminals has a counterpart in relatively simple office machinery. The Agency now has no comprehensive policies or guidance with respect to the selection of various types of typewriters and similar devices. For example, under what conditions should a Magnetic Card Selectric Typewriter be introduced into an office or activity? When should the Magnetic Tape Selectric be used? What are the relative advantages, disadvantages, costs, etc., in using the computer for drafting and editing using programs such as SCRIPT? About a year and a half ago I tried to arrange for presentations to be made by IBM representatives to explain some of the trade-offs which should be considered. But these devices reflect a kind of technology that falls between our organizational cracks. Are these devices office equipment or printing equipment? The debate still continues, I presume, and in the meantime "no one is in charge here." Much effort can be wasted, and each individual who feels the need for such equipment again must blaze his own trail through conflicting claims. OTR should develop either canned lectures or, if

appropriate, conduct courses from time to time not only in the matter of how to make the selections emphasizing the various characteristics of the available equipment, but also in operator training.

A more critical problem has now existed for over a year. The growing capabilities of the computer to assist in evaluating policy alternatives which should be reflected in intelligence estimates have been seriously neglected. Again, the basic problem is that these techniques represent a new technology: there is no corresponding organizational component clearly responsible for evaluating and exploiting the potential of these technologies. Again, this is an area in which OTR should recognize both the potential and the need early on, and provide the neutral ground on which representatives of the various professional disciplines, as well as organizational entities, can work out a reasonable course for the Agency to follow relatively untrammeled by parochial restraints. At the present time models are being built using different languages, different concepts, in several Agency components. The longer this continues the more difficult it will be to integrate these models into a comprehensive, higher-level analysis system.

Last June I discussed the requirement, our present status, and what we should do about this problem as summarized in Attachment A. But in the absence of a desire to undertake this task within the S&T Directorate staff, the progress has been slow and piecemeal at best. Training should be the proving ground for assessing and developing such new technologies and procedures through the use of informal, ad hoc, multidisciplinery groups with clear responsibilities, objectives, and schedules. In particular, in the case of large scale systems analysis, training programs should promote the use of common computer languages, the use of common units in analyses, i.e., bushels, dollars, etc., and most importantly, the notion that wherever possible the models should be designed in such a way that they are consistent and readily integratable from the micro to the macro level. For example, the units and the conceptual design of a model to assist in the analysis of natural gas production in the United States should, if at all possible, permit analysis of similar resource problems either domestically or in other countries, and then the outputs of these should be summable to provide a world total. The likelihood of such a system of analytical tools being developed without any coordinating effort is zero.

The training programs must get closer to the users--in particular, with the projects and programs. In some cases, where there is a long, well established need for training,

the cooperation and coordination between the organizational element needing the training and OTR is, no doubt, excellent. But in new programs such as overhead reconnaissance, I do not believe that OTR has joined the program aggressively enough. (And to be able to help, of course, OTR must carefully assess its own needs for qualified personnel who can help, and not be part of the problem.) In some cases it may be that the training can be accomplished best within the unit developing the system. But, in any event, OTR should assure that this is the case and be ready to help or augment whatever the developing element has undertaken. In particular, if the work requires special skills which exist only within the operating element, OTR should anticipate some rotation and assure that appropriate training is provided to facilitate this rotation.

I believe the above adequately illustrates the variety of things in which Training has generally lagged the training needs.

Local Facilities Should be Exploited

Local facilities are not adequately exploited with respect to existing training requirements. In addition to a comprehensive survey of the Agency's needs (and this can only be accomplished successfully by having outsiders as well as insiders participate in the survey) local government and civil facilities should be used whenever appropriate.

To give an example, the Agency suffers now, and will continue to suffer for some time, because the need for senior officers at the office and deputy level to have more than a casual appreciation for what computers can and can't do has not been perceived. Typically (think of SIPS) we have hired contractor personnel to "computerize" some functions. Generally they have been guided by officers who were not professionally skilled--either in the areas which were to be "computerized," or in the use of computers. I believe, taking Finance for example, that there is little hope for developing anything that even comes close to an optimum system in this area until either the Director of Finance, or the Deputy, is educated to a level where he can generate flow diagrams. These diagrams can provide the meeting ground for exchanging ideas between management and the computer programmers. Only the senior officer with years of experience can appreciate and evaluate the kinds of changes which can be introduced in order to get the best fit between the computer and the task to be performed and, in fact, he should also be capable of making the decision as to whether the introduction of computers to assist in the task makes sense in the first place. Simply

duplicating the human procedures with the computer--which is too often the case--will guarantee a shabby system. The kind of skills needed by the senior officers can readily be acquired in the local area schools--a year of graduate work would suffice. Nearly four years ago, Colonel White concurred that such a training program could serve to both exploit the experience which had been gained through the Agency's investment in the senior officers' career, facilitate the introduction of desirable computer assistance by reducing the ignorance/NIH inhibition and, at the same time, enhance the value of the senior officer in his final years with the Agency. Mr. Knocke was asked to start considering who might undergo such training, but he moved to CRS and no action in terms of an organized program has been initiated. Why? Again, no one's in charge here, but it would still be appropriate for OTR to take some initiative in this area to exploit the community assets for this particular need. (The proposed action is described in Attachment B.

Greater Use of Training Aids

A greater variety of training aids should be used and promoted--tape/slide, cassettes, and other training equipment could be used to bring the training to the individual when informal classes are either inappropriate or difficult to arrange. The case for their use with respect to computer terminals has already been mentioned. A recent suggestion to the Suggestion Awards System, No. 73-282, pointed out that no formal programs exist to provide training or guidance in dictation. Whereas secretaries and stenographers undergo extensive training, none is available on a formal basis to those who are doing the dictation. Because of a fear of the unknown, embarrassment, etc., many drafts are written which should have been dictated, and valuable time has been lost--and will continue to be lost--and stenographic skills have been underexercised. Further, there is no guidance as to when direct dictation is preferable to the use of machine recordings. The OTR response to the suggestion was that no training program had been initiated because no one had requested it. I suspect the reason for this is that the problem does not become sufficiently severe in any one place to prompt the request, while, in fact, there may be a general requirement spread throughout the Agency. The negative response to the suggestion was probably prompted also by a stereotype approach to training, i.e., get all the trainees into the classroom. Certainly the cassette or some other appropriate device--perhaps a manual--could be prepared and publicized, or perhaps even distributed directly to all officers having secretaries with stenographic skills. (And

no doubt some secretaries would find tactful ways to make a few hints.)

Communications

Training should also stimulate internal communications among professionals in the Agency. The Agency has a large number of technically trained people--physicists, engineers, mathematicians, etc. Except for R&D, I know of no publication, or any other activity, designed to let the professional know what is going on in the Agency in his area of concern. (Yes, we are able to easily organize softball and bowling leagues!) It is easy--but erroneous--to presume that all of the economists are in OER, and they all know each other, and they all know what's going on. I would expect Training to take the initiative to determine whether there aren't a number of officers with training and interests in economics who are now working in other fields, but who would like to be informed of current programs and problems who, no doubt, could make some contributions from time to time if they were only aware of the needs. It cannot suffice to simply send material of this kind to the training representatives in the various directorates and other organizational entities. Arrangements must be made to get it directly to those who are interested. When lecturing to the Project Officers classes I frequently ask how many of them have seen R&D. Generally it is about half. Yet in every instance those attending the course show an interest, and frequently call later to try to arrange to have future copies sent directly to them. If the Agency is interested in improving the professional caliber of its employees, it must facilitate and encourage their professional development and, in particular, encourage them to focus their interest on Agency problems. OTR is ideally situated to provide this service across the inhibiting organizational lines. Brookings Institute doesn't forget its trainees: shouldn't Training be able to do even better?

In Summary

Training should regularly and frequently assess the total training needs of the Agency--especially in regard to new technologies and developments. Training, the organizational elements, and outside expert help must cooperate in this fundamental task. On-going programs must be evaluated to see if improvements are needed, and if they truly serve a worthwhile need.

Training must be more aggressive in anticipating needs. As in preventive medicine, the objective should be to prevent chronic or crunch training ills from developing.

Lots more can be done locally.

New training devices are not being fully and effectively applied.

Training has an inside track, now unused, which can enhance internal communications among those with common interest.

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[redacted]

DRAFT STATINTL [redacted] A

INTERNAL USE ONLY

Computer/Operations Research Skill Development Program

1. The Agency and the Intelligence Community have experienced considerable difficulty in realizing the benefits which intuitively appear to be potentially available through automatic data processing and other computer applications, and operations research and systems analysis techniques. I feel this situation exists because the more experienced officers who appreciate what is needed and understanding the alternatives which may be used for satisfying the needs are not sufficiently skilled to assess the capabilities (and incapabilities) of computer technology and operations research as solutions of these needs. On the other hand, officers who are competent in computer and operations research techniques are generally young, inexperienced, and junior.

2. Again and again experienced seniors and computer/OR educated juniors have been teamed to study and resolve Agency and Community information handling and processing problems with remarkably little success- [redacted] After a period of STATINTL a year or so these teams dissolve--generally with each set of participants mutually frustrated.

3. I believe the lack of results in these team efforts is due to ILLEGIB [redacted]

the gaps in experience and education of the participants, aggrevated further by an inability to communicate in the critical technologies: these gaps cannot be adequately bridged to achieve effective results using this team approach.

4. Although juniors obviously cannot be rapidly "experienced", seniors can quickly acquire a high level of competence in computer/OR techniques. This has been demonstrated, for example, in Navy and Marine Corps programs. Specifically, I believe that the skills of senior officers can be sufficiently extended through approximately one full year of graduate work (such as that provided within the Center for Technology, American University) to make them personally competent to identify and evaluate ADP applications and effectively communicate to the junior officers and thus lead and guide the implementation of the detailed effort required.

5. Because pressing problems which arise from time to time associated with computer and operation research techniques generally occur in different organizational units of the Agency at different times, the broad needs for the development of skills in these areas by senior personnel may not be readily perceived. Consequently, piecemeal attempts to ameliorate the situation and short management familiarization courses, while useful, do not address the basic problem.

6. Unlike most commercial, technical, educational, or other organizations, the Agency cannot satisfactorily solve this fundamental problem through hiring or contracting because the Agency's problems tend to be highly specialized both in their nature and in the environment in which they must be solved. Thus computer/OR competent-Agency experienced personnel must be "home grown" for the present time.

7. A wide spectrum of benefits may be achieved by the Agency by exploiting the experience of these senior officers. In its community role these experienced officers, if competent in the critical techniques, could assume leadership in a variety of community activities in order to assure that this work was properly organized and accomplished. If experienced officers cannot provide the leadership which is required, the potential for a succession of unsatisfactory results must be accepted, and considerable delay will be incurred before the benefits which are potentially available may be enjoyed. It is especially important that an internal capability be developed to deal effectively in all activity areas--finance, logistics, communications, intelligence analysis, etc.--with advisory groups such as the recent Knox Panel which may be expected to increase in number in the future. Fundamentally, the Agency will maintain leadership in this vital area through its

capability, not from its position in the community.

8. Within the Agency the variety of improvements which may be anticipated are numerous and only a few need to be enumerated for illustration. The greatest gain may result from increased effectiveness in the implementation of computer/OR techniques because the programs will reflect experienced officers' leadership. These programs will be more efficient because they will have been better defined. A major increase in efficiency may also be anticipated because of the improved ability to communicate throughout the Agency in these areas. For example, contract, finance, legal and other officers have fundamental interest in data associated with external contracts, and the ability of the officers with these concerns to state their information system requirements will be greatly enhanced. Benefits in other areas such as in file organization and structure which are critical to information retrieval can be anticipated -- again due to the increased skill and understanding with which senior officers can define the needs in terms which are comprehensible to the computer programmers.

9. Personal benefits are not restricted to those who participate in such a program as senior officers. The very existence of this activity will encourage junior officers to remain with the Agency if they perceive a progressive rather than stultifying attitude towards

modern techniques. Further, and perhaps more importantly, the communications between the junior and senior officers will be improved. Although it is difficult to estimate with precision, it is clear that junior officers experienced in computer technology and operations research have been leaving the Agency due in part to a feeling that effective applications of their skills cannot be made and will not be appreciated through the senior officers with whom they deal.

10. For senior officers the new skills which they acquire will provide an opportunity for them to make an especially significant contribution to the Agency in their pre-retirement period by fully utilizing the experience they have acquired through the years. Extraordinary productivity may result in these last few career years because the conditions and circumstances will tend to reduce the parochialism which often complicates many problems. Undoubtedly the participating senior officers will be highly motivated because of the outstanding opportunity presented to the participants to equip themselves for a post-Agency career.

11. To be successful, several factors seem to be of particular importance to the proposed program. First of all, there must be enough participants throughout the Agency to have an immediate and widespread effect--perhaps 30 - 50 officers. These officers should

have 3 - 5 years remaining (but no more than 3 - 5 years) before retirement. This follows in part from the proposition that it is the senior officers whose needs are greatest in these skill areas. Incidentally, the Army Electronics Command recently had a program to provide training of the type discussed here to their junior officers. The results were not particularly gratifying since many of those who received the training promptly left the Army to obtain better jobs. In some cases it was advantageous for the officer to refund the cost of the training to the Army. On the other hand, the Navy has had a program designed for senior officers (Commanders and above, I believe, plus civilian equivalents) and the attrition has been negligible so that the skill improvement has been retained within the organization.

12. Selection for this training program by a special board which includes not only representatives from the Office of Personnel but also representatives from the American University and the Agency Evaluation Staff is recommended. The officers should attend the regular on-campus courses in order to broaden their perspective as much as possible.

DD/S&T 1792-72
13 June 1972

MEMORANDUM FOR THE RECORD

SUBJECT: Large Scale Systems Analysis Program

This memorandum describes why an inter-Directorate effort should be initiated to assess the needs for developing a Large Scale Systems Analysis capability, indicates the current status of some relevant work, and outlines steps which might be taken to improve the Agency's position in this field.

The Requirement

There are two basic reasons why the Agency should develop a capability to use Large Scale Systems Analysis (LSSA): to assess implications of the state-of-the-art, and to determine the need for LSSA as an aid in the production of intelligence.

With respect to the first requirement, Professors J. Forrester (World Dynamics) and Dennis Meadows (Limits to Growth) have published analyses indicating possible global trends in population, capital investment, polution, and other parameters of importance to intelligence. Although different in terms of scope and time scale from conventional intelligence estimates, these analyses, nevertheless, foreshadow the increasing need for a longer-range forward view if world leaders are to deal adequately with the problems of an increasingly interdependent and complex society. Forrester and Meadows insist that their analyses should not be regarded as predictions but rather as rough projections of alternative futures which might be realized by the adoption of various policies.

The Forrester/Meadows' work has drawn considerable attention to the need for a large scale approach, much publicity--including pro and con editorials and comments--has resulted from their work. The Club of Rome has been

influential in this development, and will assure international consideration of the results. Meadows' study was presented initially in Moscow and then in South America prior to the presentation in Washington. In addition to the general public interest, one entire issue of the Transactions of the Systems, Man, and Cybernetics Society of IEEE was devoted largely to papers dealing with an earlier Forrester LSSA program (Urban Dynamics). Herman Kahn has been especially interested and involved with the Forrester/Meadows' work, and has enumerated the favorable characteristics of the model as well as deficiencies which need to be corrected. His reaction typifies the interest and comment that should be anticipated from non-government organizations interested in the future.

Given this degree of activity and interest, the press and Congress, among others, could reasonably expect the Agency to be more than casually acquainted with this development. If asked, the Director should be able, at least, to say that we are evaluating LSSA--and we should be.

With regard to the second part of the requirement, as indicated in the Implications paper, complexity and interdependence are rapidly on the increase. This in no way degrades the importance of microanalyses, i.e., the analysis of the economy of an industry, or a country, or single weapon systems, etc., but it does emphasize the new need for the development of macroanalysis capabilities to "get it all together."

The importance of a holistic approach to problems has been recognized from the earlier days of modern civilization, and it is a salient feature characterizing Chinese thought today. In the Western World, however, the rapid development of the physical sciences over the last three centuries infused the idea of breaking problems into tractable parts, finding solutions for these partial problems, and presuming that the sum of the partial solutions constituted a solution to the whole. In raising the question "Can We Survive Technology?" 17 years ago, von Neuman clearly indicated that the broadening scope of impact of technological developments would necessitate a broader and broader scope of analysis. Churchman and Akoff, both front-rank American developers of operations research techniques, have repeatedly and urgently

warned that greater attention must be given to a holistic approach--difficult though it may be to develop.

To assure maximum credibility and utility of future intelligence estimates, relevant factors which may be new on the scene will have to be taken into account. The identification of these factors and their relationships--let alone the determination of their impact on intelligence estimates--will necessitate the development of some systematic way of dealing with this complex problem. LSSA may not be the solution--but at the present time it certainly is a good starting point--and some have already begun. For example, Meadows has now left MIT to continue his work in LSSA at Yale using a $600,000 grant to initiate the development of models similar to the global model on a country-by-country basis.

Our Present Status

We have bits and pieces of people, interests, and facilities scattered throughout the organization.

Considering people first, there is a growing body of the kind of expertise which would be required in the development and management of LSSA models, and many of these people are genuinely interested. Certainly, modeling is not new to the Agency: scientific models are employed in reconnaissance programs, models are used for retargeting, and economic, epidemic, and other models, in addition to weapons exchange models, have been developed in the past and are in use. The fact that these models exist testifies to the level and diversity of professional capability among Agency employees.

With respect to LSSA, the Agency area and disipline specialists represent a unique asset. When it comes to economists and similar professionals, the Agency has what it takes--in spades.

In the matter of interest, the existing models testify to the immediate past. But [redacted] in IPRD, for example, STATINTL is interested in ways in which LSSA might be instrumented, and believes that a hybrid rather than a strictly digital approach might be more efficient. [redacted] is trying to determine whether and how ecological problems

should be treated from an intelligence point of view. His interest in no sense represents a commitment, but rather
STATINTL a look, and, of course, looks at such global problems will ultimately require an LSSA capability if they are to be handled adequately. Interest in the Agency is further demonstrated by the response to the LSSA Course which [redacted] recently directed--it was oversubscribed--and we now plan for the course to be given five times in the next fiscal year.

We have facilities in abundance.

What Can We Do

Doing is complicated by the fact that LSSA doesn't, and shouldn't, fall neatly into any Directorate's responsibilities. Those best qualified to operate the models and the necessary equipment are largely housed in the S&T Directorate. But the substantive talent is largely elsewhere--especially in the Intelligence Directorate and the Board of National Estimates. Presuming the S&T Directorate has pretty much all that is required in the way of the horse and the cart, that the substantive load will be developed elsewhere, and subject to the interest and cooperation of the other components, the DD/S&T could at this time designate a focal point--an individual to function as a point of communication, and to assume ad hoc program responsibility for getting a variety of activities underway, including:

a. Replicate and make operational Forrester/Meadows' world models.

b. Form an ad hoc, part-time group of associates to recommend variations of the Forrester and Meadows' parameter values and rates, and generally exercise the models in such a way as to assess the potential strengths and weaknesses.

c. Initiate, if necessary, the development of country models, or, in consultation with Forrester/Meadows, etc., develop recommendations for work to supplement their efforts.

d. Initiate the cataloging of existing Agency models and pertinent non-Agency models which may have utility.

e. Assess the feasibility of promoting a degree of commonalty among micro and macro-models such that an interrelated library of such models could be developed which would be mutually supporting.

As a first task, of course, and with considerable intra-Agency as well as with external consultation, an interim 2-year program should be developed for review with Agency executives, and periodic reports of "how goes it" nature should be used to evoke guidance or modifications to the program as the work progresses.

[redacted]TL
Special Assistant to the
DD/S&T

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